



Training on Mapping the Potential of Capture Fisheries in Tanjung Pasir Village as an Effort to Develop an Economy Based on Marine Resources

Kalfin^{1*}, Danial², Damar Rais³, Reza Septian Pradana⁴, Diyas Arya Nugroho⁵, Sausan Ramadhani⁶

^{1,2,3}*Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Negeri Makassar, Indonesia*

⁴*Central Statistics Agency of Tangerang Regency, Indonesia*

^{5,6}*Statistics Study Program, Faculty of Science Computer and Mathematics, Matana University, Indonesia*

**Corresponding author email: kalfin@unm.ac.id*

Abstract

Tanjung Pasir Village, located on the coast of Tangerang Regency, has significant potential for capture fisheries, but its utilization is still suboptimal. This community service program aims to provide training to the fishermen of Tanjung Pasir Village on the use of efficient and environmentally friendly fishing gear, as well as better management of catch. Through this training, it is expected that fishermen will be able to increase their catch, reduce the negative impact on the environment, and optimize the potential for fisheries product downstream processing. The training results show an increase in fishermen's understanding of the use of environmentally friendly fishing gear and better catch management techniques. This training has also successfully increased fishermen's income, with the average catch value per trip for outboard motorboats reaching 1,406.03 thousand Rupiah, while fishing without a boat only reached 269.37 thousand Rupiah. It is hoped that this program will have a positive impact on the welfare of fishermen and the sustainability of the fisheries sector in Tanjung Pasir Village.

Keywords: Fisheries potential, community service, fishermen, Tanjung Pasir village

1. Introduction

Tanjung Pasir Village, located on the coast of Tangerang Regency, has a significant potential for capture fisheries. Most of the village's population depends on the fisheries sector for both consumption and daily economic needs (Kalfin et al., 2025). However, despite the vast fisheries potential, its utilization is still not optimal. Many fishermen still use inefficient traditional fishing gear and lack knowledge on how to manage their catch to increase its market value. Additionally, environmentally harmful fishing practices also threaten the sustainability of marine resources (Septiansyah & Rahmani, 2019). Therefore, training to enhance the potential of capture fisheries is crucial to help the fishermen in this village increase their catch and preserve the sustainability of the marine ecosystem. The training to enhance fisheries output can be conducted by introducing digital marketing, improving product quality, examining the impact of product pricing on purchasing decisions, and developing SMEs through processed food products (Tooy et al., 2024).

The objective of this community service activity is to provide training to the fishermen of Tanjung Pasir Village on how to map the potential of capture fisheries in their area. This training aims to improve the fishermen's knowledge of marine resource-based fisheries mapping techniques and to enhance their understanding of the importance of environmentally sustainable fisheries management. Moreover, the training is expected to help fishermen identify more efficient fishing locations and improve their catch, while also providing opportunities for fisheries product downstream processing.

Various studies show that mapping the potential of fisheries can improve the efficiency of fishing operations and support the sustainability of marine ecosystems. According to Valentina et al. (2024), the use of technology-based mapping techniques can help fishermen identify more productive fishing locations and reduce overfishing in specific areas. Research by Latuconsina et al. (2023) also indicates that the use of geospatial data in fisheries management can increase catch and support conservation efforts for marine natural resources. Thus, training that combines mapping aspects with resource-based fisheries management is highly relevant for implementation in Tanjung Pasir Village to improve the welfare of fishermen and sustain the coastal ecosystem.

The challenges faced by fishermen in Tanjung Pasir Village are urgent and need to be addressed immediately. The use of environmentally harmful fishing gear and the lack of understanding about mapping fisheries potential has led to declining catch and damage to the marine ecosystem. Without accurate mapping and more efficient fishing approaches, the existing fisheries potential will continue to decline. Therefore, training on fisheries potential mapping is essential to help fishermen optimize their catch and maintain the sustainability of marine resources.

2. Materials and Methods

2.1. Location

This activity was carried out in Tanjung Pasir Village, Teluknaga District, Tangerang Regency, Banten Province. The selection of this location was based on the village's coastal characteristics and its strong connection to the capture fisheries sector, which is a key pillar of the community's economy. The village profile indicates that most of the residents depend on marine resources for their livelihood, while the presence of the Tanjung Pasir Dock/Fish Auction Place (TPI) makes the village a hub for landing and distributing catch. Additionally, the village has the potential for downstream processing of fisheries products and supports coastal ecosystems that are relevant for the development of a marine resource-based economy, making it an ideal location for implementing the fisheries potential mapping training program.

2.2. Activity Objectives

The primary target of this activity is the capture fishermen in Tanjung Pasir Village, as they are the most directly involved in fishing activities and have the best understanding of local conditions. In addition, the activity also targets fisherfolk groups (KUB), village officials, and housewives involved in the processing of fisheries products, with the aim of fostering a shared understanding of the potential fishing areas, the types of available resources, and opportunities for utilizing them to increase income. Involving these various groups is important to ensure that the mapping results do not remain as mere data, but can be translated into a foundation for local economic planning, strengthening fishing enterprises, and developing downstream products based on marine resources.

2.3. Methods

The implementation method of this activity uses a community service approach based on participatory training. This approach was chosen because it not only places the community as participants but also as the primary source of information in the process of identifying and mapping the potential of capture fisheries. The activity is carried out through a combination of lectures, focused group discussions (FGD), field observations, simple mapping practices, and assistance in preparing potential maps. Through this method, participants not only gain conceptual knowledge about capture fisheries potential and coastal economics but are also guided to recognize fishing areas, fishing seasons, types of catches, supporting facilities, and opportunities for developing marine resource-based businesses in a systematic and practical way. The stages of this community service activity are illustrated in Figure 1 below.



Figure 1: Stages of Community Service Activities

3. Results and Discussion

Capture fisheries in Tanjung Pasir Village use four types of boats/vessels for fishing, namely without a boat, non-motorized boat, outboard motorboat, and motorized boat. Each type of boat/vessel serves a different function, and each fishing operation selects a boat/vessel according to its business type to maximize the catch. The most commonly used type of boat/vessel is the outboard motorboat, with a total of 496 boats. The second most used type is the motorized boat, with a total of 64 boats. The percentage of capture fishing operations at sea based on boat/vessel type in Tanjung Pasir Village shows that the majority of fishing operations use outboard motorboats, accounting for 82%. Motorized boats are used by 11% of fishing operations, while non-motorized boats are only used by 1%. Additionally, 6% of fishing operations catch fish without using any boat. This percentage reflects the fishermen's preference for the type of boat/vessel they consider most efficient and suitable for maximizing their catch at sea.

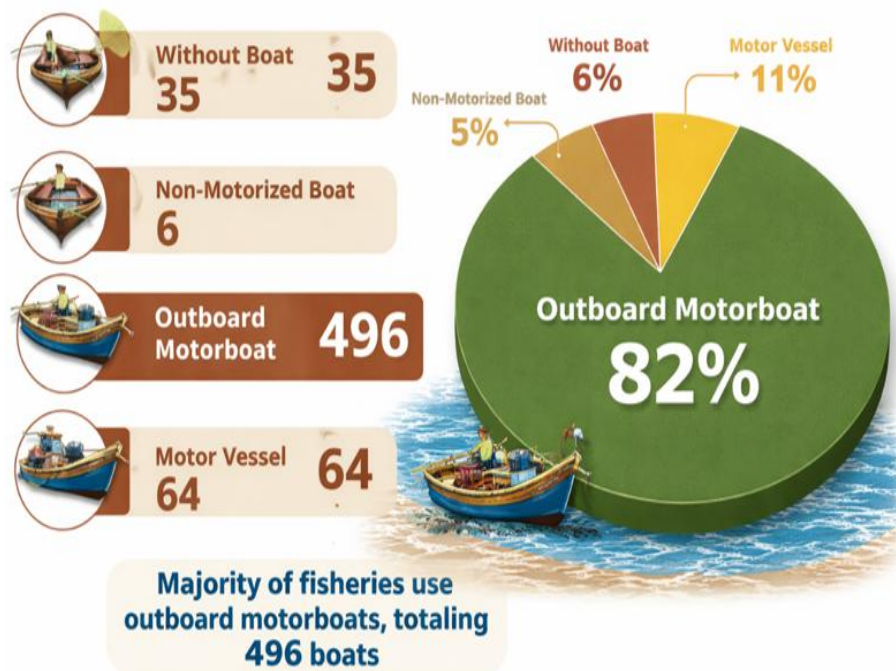


Figure 2: Number and Percentage of Capture Fisheries Operations at Sea by Vessel Type

Capture fisheries on land in Tanjung Pasir Village generally do not involve the use of boats, with only 3 recorded fishing operations. These operations are usually conducted using simple or even manual fishing tools, such as nets or fishing rods, due to the characteristics of land-based water bodies, which are more limited in terms of space and depth compared to marine environments. Despite this, land-based capture fisheries still have significant potential to contribute to the local economy and the sustainability of natural resources, considering the high biodiversity of the inland water bodies around Tanjung Pasir, particularly in the rivers and reservoirs in the area.

Although land-based capture fisheries are not as intensive as marine fisheries, which rely heavily on motorized boats and vessels, they provide an alternative for fishermen living in areas with limited access to the sea. With proper training and empowerment, land-based fisheries have the potential to develop, positively impacting the welfare of the fishing community and supporting a more environmentally sustainable fisheries sector.

Furthermore, the development of land-based fisheries that utilize environmentally friendly technology and efficient fishing gear is crucial. This will strengthen the economic sustainability of the Tanjung Pasir community, which depends on aquatic natural resources. One potential development approach is through outreach and training on the use of the latest technologies in land-based fisheries, which can help fishermen improve their catch while reducing the negative impact on aquatic ecosystems.

Based on the analysis of marine capture fisheries activities in Tanjung Pasir Village, the highest average catch value per trip is IDR 1,406.03 thousand, achieved with an outboard motorboat. The lowest average catch value per trip is IDR 269.37 thousand, achieved by operations that do not use a boat.

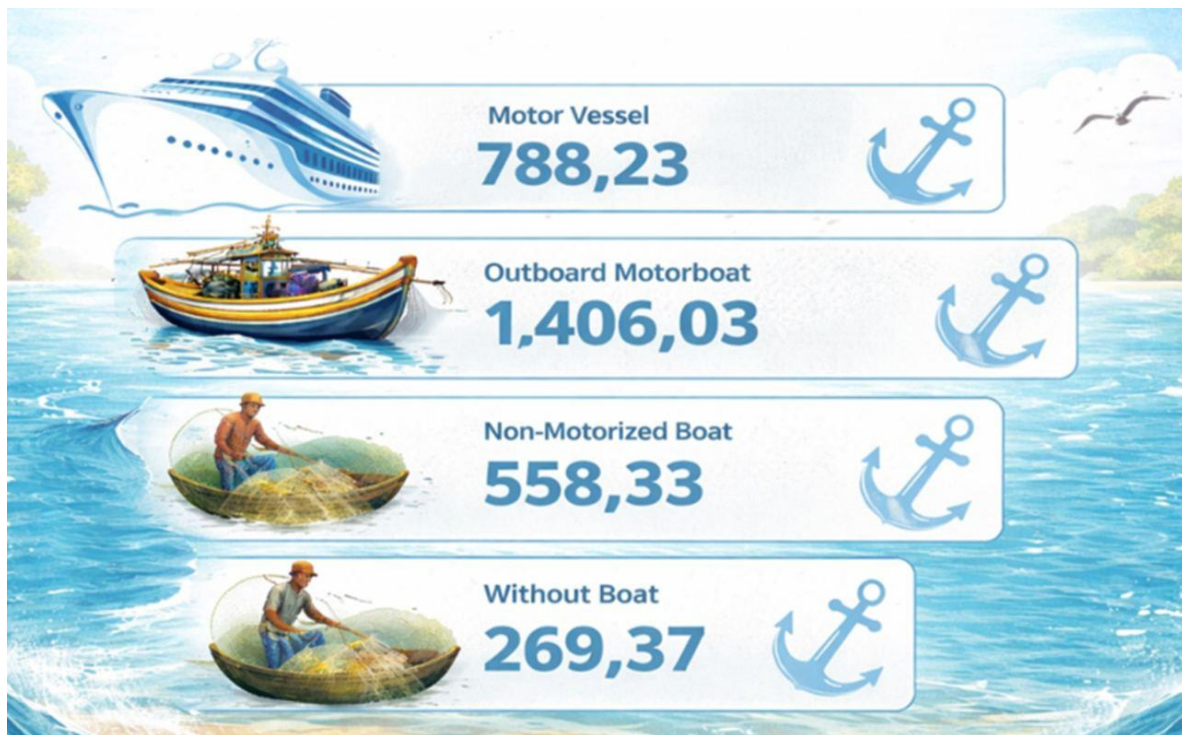


Figure 3: Average Catch Value per Trip at Sea by Vessel Type (Thousand Rupiah)

4. Conclusion

The training to enhance the potential of capture fisheries in Tanjung Pasir Village has successfully improved the fishermen's skills in using environmentally friendly fishing gear and managing their catch more efficiently. The use of outboard motorboats has become the primary choice for fishermen, with the average catch value per trip reaching IDR 1,406.03 thousand, indicating a great potential for sustainable marine resource-based fisheries management. Although fishing operations without boats contribute minimally, they still demonstrate that land-based fisheries can play an important role in the local economy. Therefore, training and empowering fishermen, as well as developing environmentally friendly technology in fisheries, is essential to strengthen both the economic and environmental sustainability in Tanjung Pasir Village.

References

- Kalfin, Nugroho, D. A., Ramadhani, S., & Pradana, R. S. (2025). Optimization of data administration management through mentoring and training for village officials in the "Love Statistics Village" program in Tanjung Pasir Village. *International Journal of Community Service Research*, 6(2), 85–90.
- Septiansyah, R., & Rahmani, U. (2019). Business analysis of milkfish (*Chanos chanos*) aquaculture in Tanjung Pasir Village, Teluk Naga District, Tangerang Regency. *Satya Minabahari Scientific Journal*, 4(2), 122–132.
- Valentina, A., Putri, R. A., & Marliani, M. (2024). Focus group discussion on coastal community empowerment in mapping natural resource potential in Busung Panjang Village. *Journal of Community Service*, 1(1), 37–47.
- Latuconsina, H., Amri, K., & Triyanti, R. (2023). The important role of sustainable marine fisheries management for habitat sustainability and resource utilization. In *Sustainable marine fisheries resource management* (pp. 1–22). BRIN.
- Tooy, Y. L., Persius, A. A., Tinambunan, M., Tanuwijaya, T., Mulyandi, M. R., & Kalfin. (2024). Influence of digital marketing, location, product quality, and product price on purchase decisions in food and beverage companies: A systematic literature review. *International Journal of Humanities, Law, and Politics*, 2(1), 12–18.